

Grade Level Texas Essential Knowledge and Skills (TEKS) by Content Area:

Science (Environmental) {2009}

Grade 3: 1B; 2A; B; F; 3A

Grade 4: 1A; B; 2A; B; F; 3A; C

Grade 5: 1A, B; 2A; B; C; D; F; 3A;
9C

Grade 6: 2A; B; E; 3A; 4A

Social Studies {2010}

Grade 3: 4D; 18A; C; 19A; B

Grade 4: 9A; B; C; 21B; 22C; D; E;
23A; B

Grade 5: 9B; 25C; D; E; 26A; B

Grade 6: 6C; 7B; 21B; 22C; D; E;
23A; B

Litter Tag

Overview

Students play a tag game to understand the harmful effects litter has on Texas beach organisms.

Objectives

- ✧ Discuss how garbage harms wildlife.
- ✧ List solutions to this problem.

Prerequisites

Unit 1

Vocabulary

decompose

to separate into constituent parts or elements or into simpler compounds.

Setting

Indoors/Outdoors

Materials

- ⇒ cigarette butt
- ⇒ balloon with string
- ⇒ fishing line
- ⇒ plastic bag



Background

When litter enters the environment, either intentionally or by accident, it generally has negative effects. On the Texas coast, litter can decrease tourism, diminish community pride, and cause harm to plants, animals and people. Data collected from garbage found along Texas beaches shows the most frequently encountered items. Some commonly found items (by number of pieces picked up) are listed below, along with some of the problems associated with them.



Litter Found Most Often on Texas Beaches

✧ Cigarette Butts

Cigarette filters are the most numerous items found during beach cleanups. Filters are made of cellulose acetate, a type of plastic, which can take up to five years to break down and even longer to decompose. Children playing on beaches can put cigarette filters in their mouths. Studies show that the chemicals in cigarettes can be harmful to microorganisms that support other wildlife.

✧ Balloons

Balloons and their ribbons entangle animals and are sometimes mistaken for food and ingested, causing injury or death. Balloons can also pose a problem for boat-ers if their propellers become entangled in the string.

✧ Food and Food Packaging

Bags can entangle animals or be accidentally ingested by them, causing injury or death. Leftover food may attract additional wildlife to the beach, resulting in increased animal droppings, which can lead to high bacteria levels in the water. High bacteria levels are a reason for beach closings.

✧ Beverage bottles (glass, aluminum, plastic)

This could indicate the need for recycling containers on the beach. Broken glass and sharp points on aluminum can injure people as well as wildlife. Sea birds, sea turtles and other marine life often mistake plastic bottles for food, which can be extremely harmful.

✧ Fishing line

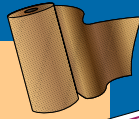
Fishing line can cause wildlife to become entangled, leading to injury or death.



MARINE DEBRIS Timeline

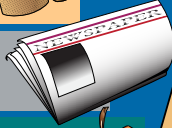
2-4 WEEKS

Paper Towels



6 WEEKS

Newspaper



2 MONTHS

Apple Core • Cardboard Box



1-5 MONTHS

Cotton Gloves



3 MONTHS

Waxed Milk Carton



6 MONTHS

Photodegradable Six-Pack Ring



3-14 MONTHS

Cotton Rope



1 YEAR

Wool Glove • Biodegradable Diaper



1-3 YEARS

Plywood



13 YEARS

Painted Wooden Stick



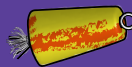
50 YEARS

Tin Can
 Styrofoam Cup



80 YEARS

Styrofoam Buoy



200 YEARS

Aluminum Can



400 YEARS

Plastic Six-Pack Ring



450 YEARS

Disposable Diaper • Plastic Bottle



600 YEARS

Monofilament Fishing Line



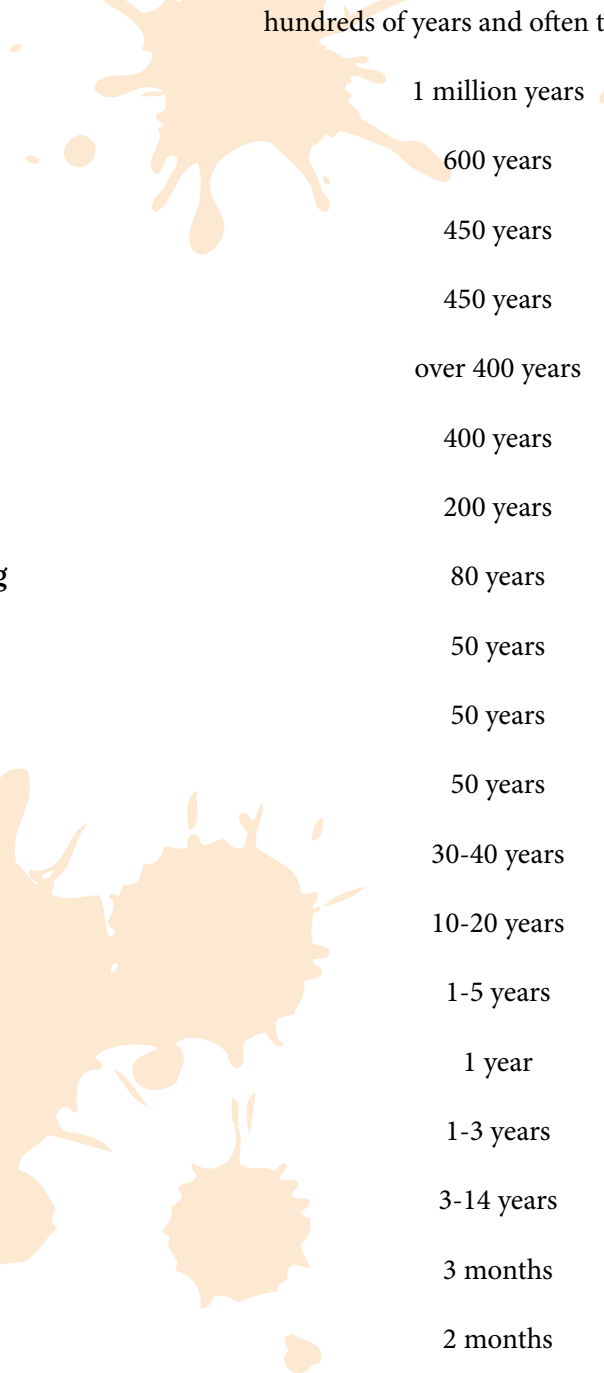
UNDETERMINED

Glass Bottle or Jar



Marine Debris Timelines

How Long Until It's Gone?



tires	hundreds of years and often times never
glass bottle	1 million years
monofilament fishing line	600 years
plastic bottles	450 years
disposable diapers	450 years
paint brush	over 400 years
plastic six-pack ring	400 years
aluminum can	200 years
styrofoam buoy/life preserver ring	80 years
styrofoam cup	50 years
tin can	50 years
leather	50 years
nylon fabric	30-40 years
plastic bag	10-20 years
cigarette filter	1-5 years
wool glove	1 year
plywood	1-3 years
cotton rope	3-14 years
waxed milk carton	3 months
apple core	2 months
cotton glove	1-5 months
newspaper	6 weeks
orange or banana peel	2-5 weeks
paper towel	2-4 weeks

Activities

1. Ask students what they like best about going to the beach. Ask them to name some problems they have seen there. Eventually, they should mention seeing litter. Ask students what kind of problems litter might cause. Use background information to help them get a complete picture.
2. Ask students to think possible solutions to this problem. For example, picking up the garbage, or not leaving it in the environment in the first place. Humans are both the problem and the solution.
3. In an outdoor area or a gym, divide the students into four groups representing litter, birds, fish and humans. For a class of 26 there should be four humans, four pieces of litter, nine birds and nine fish. Have the students decide which type of litter, bird or fish they will be. Explain that the litter will be chasing the birds and fish, trying to tag them. Once a bird or fish is tagged, they are frozen.

After one minute, the humans will come into the game to “rescue” tagged fish and birds. When rescuing a bird or fish, two humans must hold hands with the animal in the middle and yell, “One, two, three fish (or bird) free!” After several minutes, choose one or two humans to be Beach Captains. Beach Captains can still free the animals with the other humans, but now they can chase the litter, too. If litter is tagged, they must sit out. The game ends when the Beach Captains tag all the litter, or sooner, if students are tired. If time allows, switch roles and play again.

Wrap-up

- ✧ Bring the group back together and ask students to talk about what they learned or what the game made them think about with regard to litter and Texas beaches.
- ✧ Discuss the following questions:
 1. **Do animals really get caught in litter?**
ANSWER: Yes. Plastic bags, string and netting cause many problems for wildlife.
 2. **How realistic is it to say that litter “chases” animals?**
ANSWER: Animals do not generally suspect that litter will hurt them. It can take animals by surprise when litter entangles them.
 3. **How can humans help solve this problem?**
ANSWER: By picking up after themselves and telling others the harm that litter can do.
- ✧ Tell students they can all be Beach Captains by picking up litter they find at the beach and disposing of their own trash properly.

Extension

If students believe that litter is a problem in their community, have the class consider what actions they can take to solve this problem. Then help students put their solutions into action. You may want to participate in Texas General Land Office Adopt-A-Beach Program cleanups as a class, or send notes home about the Adopt-A-Beach Program.

The Texas General Land Office values your thoughts and feedback. Please provide information about any oversights, errors or omissions, as well as particular activities that students find interesting. Send comments to the Texas General Land Office Adopt-A-Beach Program at beach@glo.texas.gov.

*Adapted with permission from **Great Lakes in My World**, a lesson plan created by the Alliance for the Great Lakes.*